COTTAGE POLLUTION CONTROL PROGRAM MUSKOKA-HALIBURTON

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Environment Ontario

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Minister

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COTTAGE POLLUTION CONTROL PROGRAM

MUSKOKA-HALIBURTON

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PREFACE

Ontario's thousands of beautiful inland lakes provide an abundant resource for recreational enjoyment. To protect the quality of these waters, a delicate environmental balance must be maintained.

A heavy influx of people may subject a lake and its surrounding environment to great stress. Uncontrolled development and imprudent use of our recreational lakes may cause their deterioration and destroy their natural qualities.

The Ontario Ministry of the Environment is attempting to bring some of these stress factors under control by a variety of programs. One of these, the Cottage Pollution Control Program, was initiated in 1970 to study the cottage waste disposal problem, to evaluate existing waste disposal systems and to enforce repairs or replacement to those found to be unsatisfactory.

SUMMARY

The objectives of the program are to examine and evaluate all existing sewage disposal systems on recreational lakes and to ensure satisfactory correction to all faulty systems.

The detection work is conducted by trained seasonal staff (students) who survey all the systems on selected lakes. The surveyed systems are evaluated by Environmental Technicians. The systems found to be malfunctioning are checked by an Abatement Officer who negotiates an agreement with the owner for corrective work to be executed. The corrected system is examined again to ensure compliance with the agreement and pertinent regulations.

In 1988, 1,073 private sewage disposal systems were inspected at the following locations: Brady Lake and Koshlong Lake, Haliburton County; Six Mile Lake and Peninsula Lake, District Municipality of Muskoka. The inspection of these systems indicated that 31.5% were performing satisfactorily, 22% were seriously substandard, 39% were discharging washwater or solid waste onto the ground surface, 1% were direct polluters and 6.5% were unclassified after the initial survey. Appendix I is a summary of the inspection results.

As of December 31, 1988, 158 agreements for corrective work to be carried out had been signed by the owners. Corrections have been completed and inspected for 82 systems; 256 systems remain uncorrected, however, negotiations are continuing in anticipation of correction by owners in the spring of 1989.

COTTAGE POLLUTION CONTROL SURVEY

Preparation

During the fall of 1987 and winter of 1988, a reconnaissance and mapping program was undertaken on selected lakes by Ministry of the Environment personnel.

The crew counted the number of establishments on each lake. Every one hundredth establishment on the shoreline was photographed and described. The cottage and non cottage properties such as marinas, camp grounds and lodges were then plotted on maps.

Data obtained from the field work, other Provincial and Municipal agencies and Cottage Associations was used to prepare a work schedule for the survey crews.

The co-operation of Cottage Associations contributed greatly to the success of the program. Prior to the commencement of the survey for each lake, the Cottage Association was contacted. Representatives were given a brief outline of the survey procedures. In certain cases, a mid-summer meeting was arranged with the Association during which abatement procedures were discussed.

In the event that a Cottage Association did not exist, notices were posted throughout the area, where people may congregate (local stores, post offices, public docks, etc.). This situation usually exists along rivers or small lakes.

DETECTION SURVEYS

The crews, each composed of two students, began the survey of the lake by preparing a description log. Each building which is called an establishment was systematically numbered, accurately described and plotted onto a map to facilitate the location of the premises at a future time by detection crews or abatement staff. When the description logging was completed, copies were made and distributed to each crew.

The detection teams visited each establishment on the lake. The owner or occupant was interviewed and the lot surveyed. The information collected included type of building, number of occupants, type of use, water supply and treatment, sewage disposal methods and type, location, size and set back of on-site sewage disposal systems, type and depth of soil and physical evidence of malfunctioning systems. All data collected were entered on survey forms.

From this information the performance of the system was evaluated and the system for each establishment was given a preliminary performance classification. The classification was then verified by the supervisor.

Classification of Sewage Disposal Systems

The sewage disposal systems of all premises surveyed were classified into one of the following groups.

1. Satisfactory

   A system which meets the current standards of good design, construction and location, is properly maintained, is capable of handling sewage flows and is not causing a pollution problem.

2. Satisfactory Performance

   A system which may be slightly deficient in design, setback or construction with respect to current standards. The deficiency, however, cannot be of a nature that would constitute a pollution problem.

3. Seriously Substandard

   A system which does not meet current standards of design, construction and location, is in a state of neglect or has a limited life. The system is not presently causing a pollution problem, however the

system, due to a serious deficiency, will not be capable of treating the sewage flows in the near future. The owner is notified in writing of the deficiency and advised that serious consideration should be given to upgrading in the near future.

4. Nuisance (washwater is also known as grey water and is classified as sewage)

   A system that causes grey water to be exposed on the surface of the ground either directly through a waste pipe or escaping from a leaching pit. Such a condition is considered as a public health nuisance. Phosphates and other nutrients from grey water discharges encourage weed growth and affect the aesthetic quality of the lake.

5. Nuisance (toilet or solid waste)

   A system that causes sewage to be exposed on the surface of the ground, either directly through a pipe or escaping from some part of the sewage disposal system. Also included in this classification is "solid waste" or garbage of a kind which can cause a "Nuisance"; for example, domestic garbage containing food waste.

6. Direct Pollution

   A system which is permitting sewage or leachate to contaminate the ground or surface water.

7. Unclassified (temporarily)

   A system which has been given a preliminary classification by the student inspector where he feels he cannot use any of the preceding classifications and has doubts about the system, or any part of it. These systems require further inspection by the supervisor who will attempt to make a final classification after a thorough investigation.

8. Unclassified

   A system which remains unclassified at the end of the survey. This category usually includes a few abandoned premises in a dilapidated condition with a system that is obviously not in use and could not be used.

Corrective Procedure

After a file is examined by the supervisor and the original classification is confirmed or altered, it is referred to an Environmental Officer if abatement of a problem is required. The Officer then interviews the owner to advise him of the findings and discuss corrective action. If the owner agrees with the findings, a corrective program is initiated. The owner is asked to sign a "Pollution Abatement Report" which describes the problems found and the corrective measures required to be completed by a specific date. A final inspection is carried out upon completion of the corrective work and the sewage disposal system file is appropriately reclassified. Occasionally, an owner refuses to comply with a correction program and legal action must be initiated.

In the case of commercial establishments, this procedure is often more complex, requiring an engineering study and the submission of plans including a soil analysis report for approval. Except where there is direct pollution, the owner is contacted and is instructed to submit plans for corrective measures to be completed prior to the opening of the next commercial season.

Where a direct pollution problem exists, corrective action must be initiated immediately to prevent any further deterioration of water quality in the lake.

Methods of Sewage Disposal

The cottage areas of Muskoka-Haliburton are mostly unsewered and therefore the cottage owner must use on site sewage treatment and disposal. These systems range from a privy and leaching pit to a proprietary aerobic sewage treatment plant. The type of system used will vary according to lot size, topography, soil type, hydrological conditions and sewage flows. Most cottagers choose the septic tank system as their method of sewage disposal. This system uses a septic tank and leaching bed. The tank removes solids and the leaching bed uses soil to reduce biological oxygen demand, nutrients, and micro-organisms. Bacteria reduces the sewage to compounds and elements capable of use by the natural environment. Since soil is used as the treatment medium, the system size varies according to type of soil and sewage flows.

Another method of treatment and disposal is the proprietary aerobic package treatment plant. In this system oxygen is mixed with the sewage creating a suitable environment for aerobic bacteria which produces an effluent of improved quality. Therefore the filter bed can be reduced in size.

When sewage flows, topography and soil conditions preclude the installation of a septic tank system or proprietary aerobic package treatment plant, a holding tank is often used. It is not considered a treatment system, and is only intended for sewage retention until it can be removed and taken to an approved disposal site by a licensed sewage hauler.

The privy, incinerating, chemical, recirculating and composting toilets are accepted methods of disposal, however, they are not acceptable for grey water disposal. The leaching pit can be used only for the treatment of grey water in limited water usage situations. A septic tank is not part of the system. Again, soil is used as the treatment medium, therefore lot area, topography, soil type, hydrology and grey water flows are assessed when examining sites.

The Muskoka-Haliburton area is located on the Precambrian Shield with glacial till soil and many granite rock outcroppings, making many lots naturally unsuitable for installation of private sewage disposal systems. Most sites must be modified by the addition of filter material, slope adjustments and drainage alterations.

ABATEMENT PROGRESS FROM 1987 COTTAGE POLLUTION CONTROL PROGRAM

During the Summer of 1987, the Cottage Pollution Control Program was conducted on the following lakes: Big Hawk Lake, Little Hawk Lake, Wolf Lake, Raven Lake and Community of Dorset, County of Haliburton, and Leech Lake, Six Mile Lake, Raven Lake and Community of Dorset, District Municipality of Muskoka. A total of 1,049 private sewage disposal systems were inspected. Of these, 257 were performing satisfactorily, 247 were found to be seriously substandard, 418 were discharging washwater or solid waste onto the ground surface, 8 were direct polluters and 89 were unclassified after the initial detection survey. All of the owners with seriously substandard systems were contacted and advised that their system should be monitored carefully and may require updating in the near future. As of December 31, 1988, corrective action on 53% of the systems, which required upgrading, was completed in Muskoka-Haliburton. Owners of the remaining 215 systems requiring upgrading have signed agreements for completion during the Summer of 1989.

Legal action is being initiated against the few remaining owners who have refused to respond to attempts by Environmental Officers to have remedial measures completed.

BRADY LAKE

The geographic description of Brady Lake is the County of Haliburton, Township of Anson, Hindon and Minden, Latitude 45 degrees 03 minutes 30 seconds, Longitude 78 degrees 49 minutes. The perimeter of the lake is 9.06 kilometres and the surface area is 89.5 hectares. The maximum water depth is 61.2 metres and the lake is part of the Lake Huron Drainage Basin.

Brady Lake lies in the Precambrian Shield and is characterized by bare rock ridges and shallow till.

There were 73 private sewage disposal systems inspected on Brady Lake during the Summer of 1988. Of these, 17 or 23% were classified as seriously substandard, 30 or 42% were unsatisfactory due to the improper disposal of solid waste or washwater, and 4 or 5% were unclassified by the survey crew at the end of the survey.

As of December 31, 1988, 11 malfunctioning systems had been corrected and 9 owners have signed agreements to complete corrections during the construction season of 1989. Ministry Environmental Officers are currently directing their efforts toward obtaining agreements from owners.

MINISTRY OF THE ENVIRONMENT	
BRADY LAKE	
SCALE: N.T.S.	
DRAWN BY: D.B.R.	DATE: MARCH, 1989
CHECKED BY: W.T.M.	DRAWING NO.: 89-02

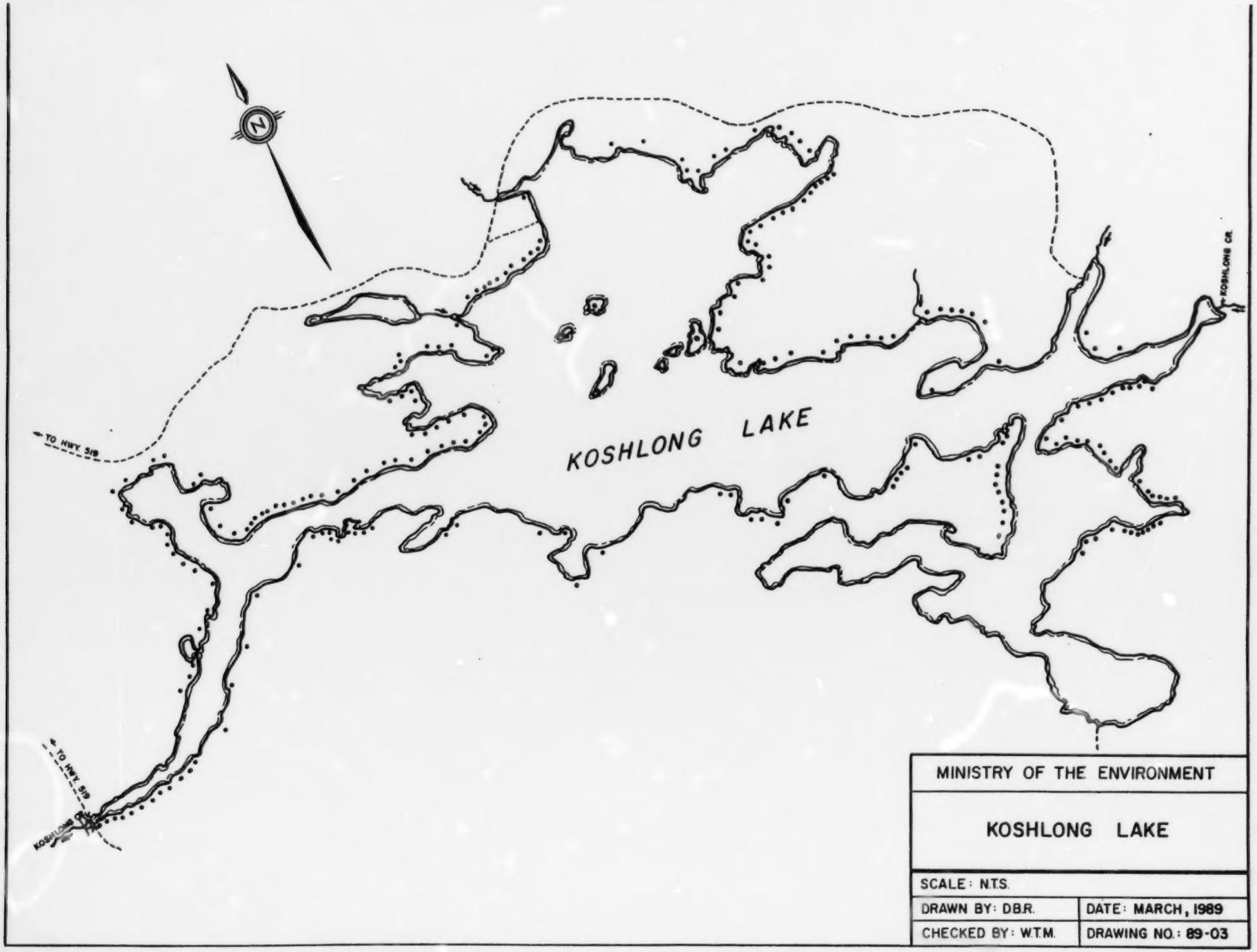
KOSHLONG LAKE

The geographic description of Koshlong Lake is the County of Haliburton, Township of Glamorgan, Latitude 44 degrees 58 minutes, Longitude 78 degrees 32 minutes. The perimeter of the lake is 11.4 kilometres and the surface area is 401 hectares. The maximum water depth is 42.7 metres and the lake is part of the Lake Ontario Drainage Basin.

Koshlong Lake lies in the Precambrian Shield. The shoreline is characterized by shallow till and rock ridges.

There were 258 private sewage disposal systems inspected on Koshlong Lake during the Summer of 1988. Of these, 50 or 19% were classified as seriously substandard, 139 or 54% were unsatisfactory due to the improper disposal of solid waste or washwater and 15 systems or 6% were unclassified by the survey crew at the end of the survey.

As of December 31, 1988, 49 malfunctioning systems had been corrected and 51 owners have signed agreements to complete corrections during the construction season of 1989. Ministry Environmental Officers are currently directing their efforts toward obtaining agreements from owners.



MINISTRY OF THE ENVIRONMENT	
KOSHLONG LAKE	
SCALE: N.T.S.	
DRAWN BY: D.B.R.	DATE: MARCH, 1989
CHECKED BY: W.T.M.	DRAWING NO.: 89-03

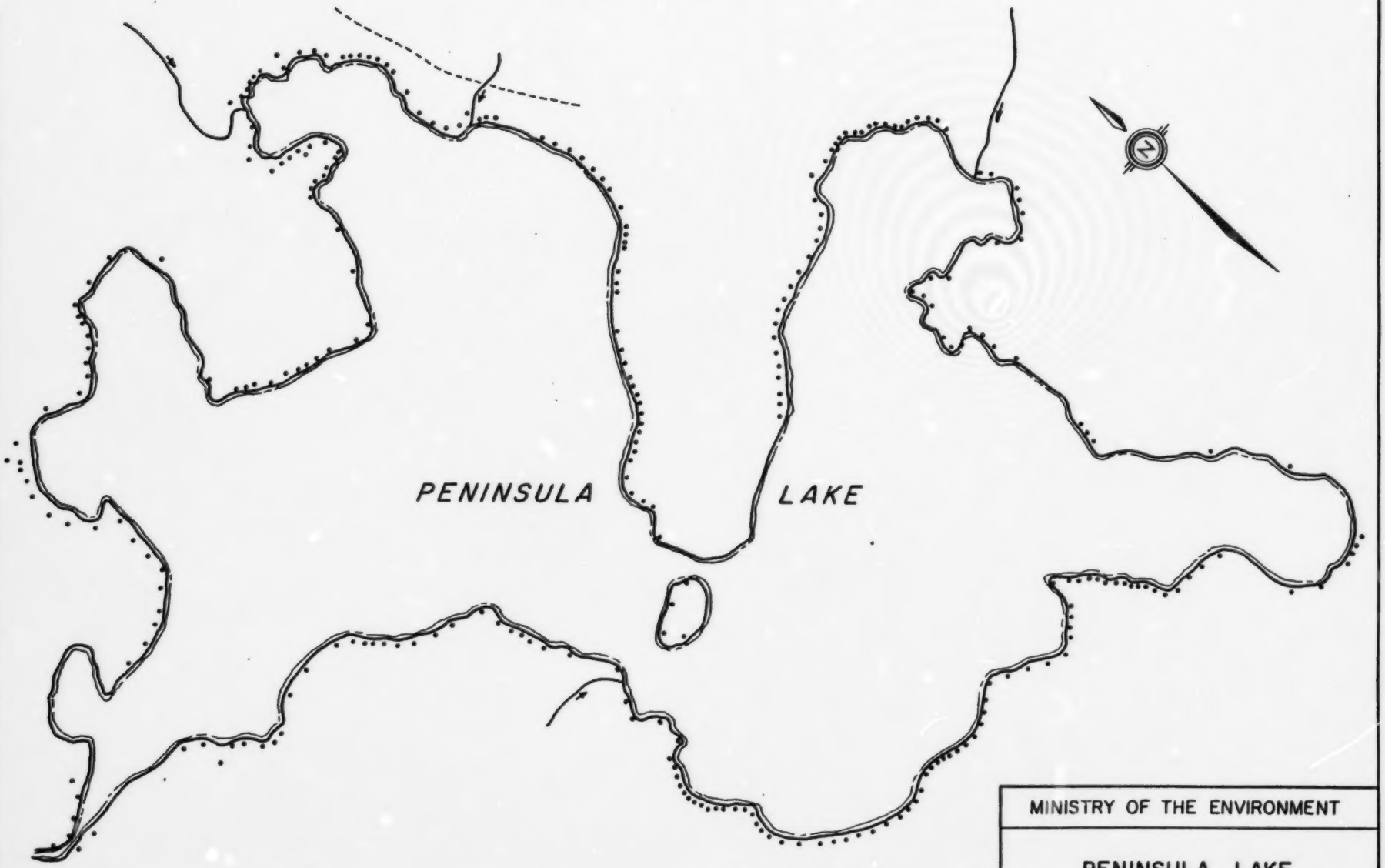
PENINSULA LAKE

The geographic description of Peninsula Lake is the District Municipality of Muskoka, Chaffey and Brunel Wards, Area Municipality of the Town of Huntsville and Franklin and Sinclair Wards, Area Municipality of the Township of Lake of Bays, Latitude 45 degrees 20 minutes, Longitude 79 degrees 06 minutes. The perimeter of the lake is 27.4 kilometres and the surface area is 865 hectares. The maximum water depth is 34 metres and the lake is part of the Lake Ontario Huron Basin.

Peninsula Lake lies in the Precambrian Shield. The entire north shore is characterized by clay plains. The remainder of the shoreline is characterized by bare rock ridges and shallow till.

There were 366 private sewage disposal systems inspected on Peninsula Lake during the Summer of 1988. Of these, 92 or 25% were classified as seriously substandard, 98 or 27% were unsatisfactory due to the improper disposal of solid waste or washwater, 3 or 1% were classified as direct polluters and 34 systems or 10% were unclassified by the survey crew at the end of the survey.

As of December 31, 1988, 11 malfunctioning systems had been corrected and 37 owners have signed agreements to complete corrections during the construction season of 1989. Ministry Environmental Officers are currently directing their efforts toward obtaining agreements from owners.



MINISTRY OF THE ENVIRONMENT	
PENINSULA LAKE	
SCALE: N.T.S.	
DRAWN BY: D.B.R.	DATE: MARCH, 1989
CHECKED BY: W.T.M.	DRAWING NO.: 89-04

SIX MILE LAKE

The geographic description for that part of Six Mile Lake surveyed during 1988 is the District Municipality of Muskoka, Township of Georgian Bay, Baxter Ward, Latitude 45 degrees 56 minutes, Longitude 79 degrees 45 minutes. This area consists of shoreline from Trans Canada Bay easterly and northerly to Crooked Bay. This completed the survey of Six Mile Lake started in 1986.

Six Mile Lake lies in the Precambrian Shield and is characterized by bare rock ridges and shallow till.

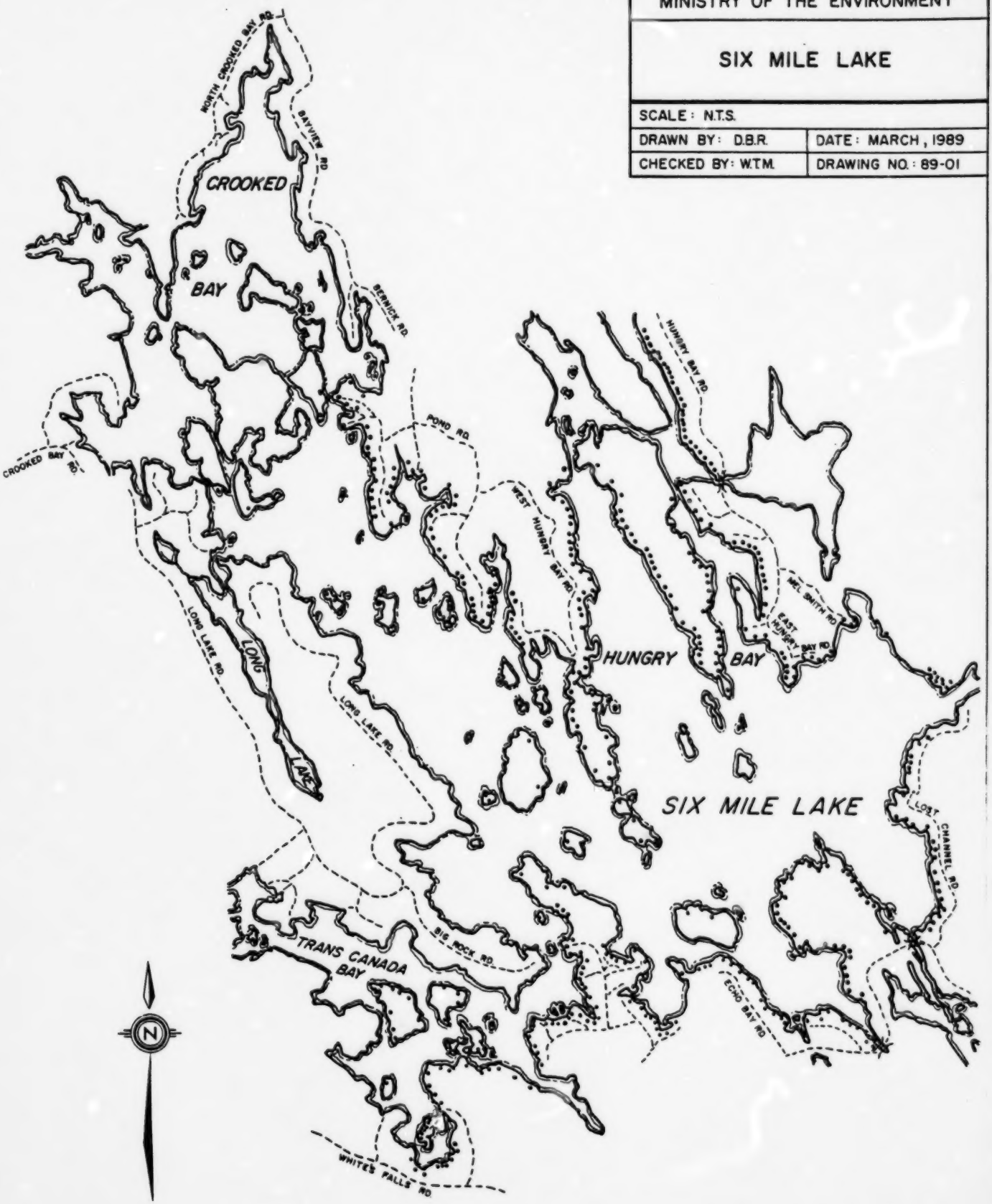
There were 376 private sewage disposal systems inspected on Six Mile Lake during the Summer of 1988. Of these, 75 or 25% were classified as seriously substandard, 149 or 40% were unsatisfactory due to the improper disposal of solid waste or washwater, 4 or 1% were classified as direct polluters, and 20 systems or 5% were unclassified by the survey crew at the end of the survey.

As of December 31, 1988, 11 malfunctioning systems had been corrected and 61 owners have signed agreements to complete corrections during the construction season of 1989. Ministry Environmental Officers are currently directing their efforts toward obtaining agreements from owners.

MINISTRY OF THE ENVIRONMENT

SIX MILE LAKE

SCALE: N.T.S.	
DRAWN BY: D.B.R.	DATE: MARCH, 1989
CHECKED BY: W.T.M.	DRAWING NO.: 89-01



CONCLUSIONS

The Ministry of the Environment found that 31.5% of the sewage systems surveyed in 1988 were performing satisfactorily. This was not considered satisfactory and demonstrated the need to continue the Cottage Pollution Control Program in 1989. Further, Ministry personnel will continue to contact owners of malfunctioning sewage systems to ensure a firm commitment for correction. Enforcement action will be initiated against owners who are unwilling, within a reasonable time frame, to co-operate with Abatement efforts.

APPENDIX I

PRELIMINARY CLASSIFICATION OF SYSTEMS INSPECTED

1988

Body of Water	Number of Systems Inspected	Classification of Systems*															
		Satisfactory		Satisfactory Performance		Seriously Substandard		Nuisance (Wash Water)		Nuisance (Solid Waste)		Direct Polluter		Unclassified Temporarily		Unclassified	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Brady	73	1	1	21	29	17	23	5	7	25	35	0	0	4	5	0	0
Koshlong	258	3	1	51	20	50	19	35	14	104	40	0	0	13	5	2	1
Peninsula	366	33	9	106	28	92	25	25	7	73	20	3	1	32	9	2	1
Six Mile	376	23	6	105	28	75	20	37	10	112	30	4	1	20	5	0	0
TOTALS	1073	60	6	283	25.5	234	22	102	10	314	29	7	1	69	6	4	0.5

*See page 4 for definition of classifications

LAKE SURVEYED

DISTRICT MUNICIPALITY OF MUSKOKA
HALIBURTON COUNTY

YEAR OF SURVEY	LAKE	NUMBER OF SYSTEMS INSPECTED
1967	Six Mile (Crooked Bay)	165
1969	Riley	150
1970	Sparrow	302
1971	Muskoka (Muskoka Bay)	270
1971	Leonard	112
1974	Bass (Ryde)	23
1974	Clear (Wood)	155
1974	Harp	78
1974	Kahshe	481
1974	Twelve Mile Lake	168
1974	Wood	205
1975	Muskoka(Bala Bay)	280
1975	Dark	38
1975	Gull (Muskoka)	138
1975	Gull (Haliburton)	413
1975	Silver	37
1975	Three Mile	542
1976	Joseph (Ames Point)	25
1976	Muskoka (Sandy Bay)	17
1976	Dickie	121
1976	Go Home Bay	119
1976	Loon	175
1976	Muldrew	378
1976	Ril	140
1976	Turtle	63
1977	Honey Harbour (South Bay)	834
1977	Muskoka (Milford Bay)	292
1977	Paudash (Haliburton)	364
1977	Joseph (Woodroffe Bay)	44
1978	Honey Harbour (North Bay)	476
1978	Severn River	833
1978	Indian River	67
1979	Esson	117
1979	Kashagawigamog (North Half)	533
1979	Muskoka	463
1979	Miskwabi	78
1979	Nine Mile	138
1980	Black Lake	57
1980	Kashagawigamog (South Half)	273
1980	Muskoka	175
1980	Soyer's	142
1980	Stewart	97
1981	Morrison	175

1981	Muskoka (Broadley Point)	239
1981	Salerno	165
1981	Sunny	56
1982	Boshkung	348
1982	Lake of Bays (Narrows)	127
1982	Muskoka (East Bay, Kettles)	227
1982	St. George	105
1982	Little Dudman	69
1982	Long	88
1982	Negaunee	15
1983	Clement	35
1983	Haliburton (South Bay)	124
1983	Lake of Bays (Narrows Cont'd)	138
1983	Long (Muskoka)	110
1983	Muskoka (Dudley Bay)	132
1983	Oxbow	134
1983	Waseosa	139
1983	Young	67
1984	Lake of Bays	187
1984	Twelve Mile	249
1984	Little Boshkung	81
1985	Lake Muskoka (Browning Island)	119
1985	Lake of Bays	260
1985	Horseshoe	289
1985	Lower Paudash	256
1986	Hall's Lake	275
1986	Lake of Bays	195
1986	Mountain	260
1986	Six Mile (year 1)	153
1987	Big Hawk	164
1987	Community of Dorset	148
1987	Leech	121
1987	Little Hawk	131
1987	Raven	155
1987	Six Mile (year 2)	252
1987	Wolf	78
1988	Brady	73
1988	Koshlong	258
1988	Peninsula	366
1988	Six Mile (year 3)	376